

Bellwork: 4/23/13

Factor the following expressions:

$$x^2 - 1$$

1) $4x - 6$

$$2(2x - 3)$$

$$\sqrt{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3}$$

Simplify the following radicals:

2) $x^2 - x$

~~$x(x - x)$~~
 ~~$x(x - 1)$~~
 ~~$(x - 1)(x + 1)$~~

3) $\sqrt{72}$

$6\sqrt{2}$
 $9 \cdot 8$
 $(3 \cdot 3) \cdot (2 \cdot 2 \cdot 2)$

4) $\sqrt{96}$

$16 \cdot 6$
 $(4 \cdot 4) \cdot 2 \cdot 3$
 $4\sqrt{6}$

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Algebra 2 5.0 Notes—Section 6-1
Operations Involving Radicals (Roots)

Objective: Find the "n" root for an expression

Recall: $\sqrt{49} = \sqrt[2]{49} = 7$ ^{index} **If there is no index, it's implied to be 2

What do you notice about the index and the exponent inside?

same

Steps for Simplifying More Difficult Radicals (Assume all variables are positive.)

- 1) Separate the terms inside the radical so that the exponent and index are the same.

$$\sqrt[8]{x^9} = \sqrt[8]{x^8 \cdot x}$$

- 2) Factor out a single copy of the term that has the matching index and exponent. (Keep all the rest of the terms inside the radical.)

Answer: $x\sqrt[8]{x}$

Examples a-j: Simplify each of the following expressions. (Assume all variables are positive.) *negative comes out.*

a) $\sqrt[3]{27} = \sqrt[3]{3 \cdot 3 \cdot 3} = 3$

b) $\sqrt[4]{16} = \sqrt[4]{2 \cdot 2 \cdot 2 \cdot 2} = 2$

c) $\sqrt[5]{5x^9y^{10}} = xy \sqrt[5]{5xy^4}$

d) $\sqrt[3]{3x^9y^{10}z^{15}} = xyz^5 \sqrt[3]{3xy^5}$

e) $\sqrt[4]{49x^2y^5z^6} = 7xyz^2 \sqrt[4]{y}$

f) $\sqrt[3]{27x^7y^3z^2} = -3x^2y \sqrt[3]{xz^2}$

g) $\sqrt[4]{64a^4bc^3} = 8a^2c \sqrt[4]{bc}$

h) $\sqrt[5]{32f^6g^5h^2} = -2fg \sqrt[5]{fh^2}$

i) $\sqrt[3]{81x^3y^4z^6} = 9xyz^2 \sqrt[3]{x}$

j) $\sqrt[4]{80x^8z^{10}} = 2x^2z^2 \sqrt[4]{5z^2}$

Lab Assignment:

Packet → all multiple choice questions are due

* graded for accuracy.

When finished:

Homework → yellow packet
Pg 6 - all

